

LONDON- WEST MIDLANDS ENVIRONMENTAL STATEMENT

Volume 5 | Technical Appendices

CFA24 | Birmingham Interchange and Chelmsley Wood
Construction assessment (SV-003-024)
Sound, noise and vibration

November 2013

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Department
for Transport

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Appendix SV-003-024

Environmental topic:	Sound, noise and vibration	SV
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Contents

1	Introduction	3
	1.2 Evaluation of impacts and effects	3
2	Scope, assumptions and limitations	5
	2.1 Regional and local policy guidance	5
	2.2 Engagement	5
	2.3 Methodology	6
	2.4 Assumptions	6
	2.5 Limitations	6
3	Environmental Baseline	7
4	Effects arising during construction	8
	4.1 Introduction	8
	4.2 Avoidance and mitigation measures	8
	4.3 Quantitative identification of impacts and effects	8
	4.4 Assessment of significant effects	33
5	References	37

List of tables

Table 1: Assessment of construction induced ground-borne vibration at residential receptors	10
Table 2: Assessment of construction induced ground-borne vibration at non-residential receptors	11
Table 3: Assessment of construction noise at residential receptors	14
Table 4: Assessment of construction noise at non-residential receptors	26

1 Introduction

- 1.1.1 The sound, noise and vibration appendices comprise four sections. The first of these is an introduction to the relevant route-wide methodology, assumptions and assessment (Volume 5: Appendix SV-001-000). This relates to the sound, noise and vibration assessment for all community forum areas (CFA).
- 1.1.2 For Birmingham Interchange and Chelmsley Wood community forum area (CFA24), the other three sections are as follows:
- baseline sound, noise and vibration (Volume 5: Appendix SV-002-024);
 - construction sound, noise and vibration (this appendix); and
 - operational sound, noise and vibration (Volume 5: Appendix SV-004-024).
- 1.1.3 The outcomes of the assessment are summarised in Volume 2: CFA24 Report, Chapter 11 Sound, noise and vibration.
- 1.1.4 Maps referred to throughout the sound, noise and vibration appendices are contained in the Volume 5: Map Book Sound, noise and vibration.
- 1.1.5 This appendix presents the likely noise and vibration impacts, effects and significant effects arising from the construction of the Proposed Scheme for Birmingham Interchange and Chelmsley Wood area on:
- people, primarily where they live ('residential receptors') in terms a) individual dwellings and b) on a wider community basis, including any shared community open areas; and
 - community facilities such as schools, hospitals, places of worship, and also commercial properties such as offices and hotels, collectively described as 'non-residential receptors' and 'quiet areas'.
- 1.1.6 The assessment of likely impacts, effects and significant effects from construction noise and vibration on agricultural, community, ecological or heritage receptors and the assessment of tranquillity are presented in the following documents within Volume 5:
- Agriculture, forestry and soils Appendix AG-001-024
 - Community Appendix CM-001-024
 - Ecology Appendix EC-005-024
 - Heritage Appendix CH-003-024
 - Landscape and visual Appendix LV-001-024

1.2 Evaluation of impacts and effects

- 1.2.1 This appendix provides a quantitative assessment of construction noise and vibration impacts/effects and a qualitative assessment of likely significant effects, based on the impacts/effects identified and other local context information consistent with the scope and methodology defined for the Proposed Scheme.

- 1.2.2 Indirect effects arising from temporary changes in traffic patterns on the existing road network as a consequence of constructing the Proposed Scheme are also reported in this appendix, where they are likely to occur within the study area as defined in Volume 5: Appendix SV-001-000.
- 1.2.3 In undertaking the assessment of sound and vibration, consistent with Environmental Impact Assessment (EIA) Regulations (see Volume 1, Section 1.3) and emerging National Planning Practice Guidance¹ a differentiation between impacts effects, adverse effects and significant effects is made. Further information is provided in Volume 5: Appendix SV-001-000.
- 1.2.4 The assessment of impacts and effects has been undertaken at assessment locations that are representative of a number of dwellings or other sensitive receptors. The assessment locations employed in this assessment are presented on Map series Sv-03 in the CFA24 Volume 5: Map Book Sound, noise and vibration.

¹ Information is provided in the Department for Communities and Local Government's emerging National Planning Practice Guidance – Noise (refer to the noise exposure hierarchy); <http://planningguidance.planningportal.gov.uk/>; Accessed: October 2013

2 Scope, assumptions and limitations

2.1 Regional and local policy guidance

2.1.1 The policy framework for sound, noise and vibration is set out in Volume 1 and in Volume 5: Appendix SV-001-000. As part of the engagement with local authorities through the Planning Forum Sub Group - Acoustics, information regarding any specific local planning guidance in respect of noise and vibration has been requested. Whilst no information has been received for this study area via the Planning Forum Sub Group - Acoustics, the following local policy guidance on noise and vibration has been identified:

- The Solihull Unitary Development Plan² - Feb 2006;
- Solihull Draft Local Plan- Sept 2012³; and
- The North Warwickshire Local Plan⁴ - July 2006.

2.1.2 This guidance has been considered as part of formulating the detailed application of the impact and significance criteria set out in Volume 5: Appendix SV-001-000.

2.2 Engagement

2.2.1 Details of engagement on a route-wide basis with the local and county authorities' Environmental Health Practitioners via the Planning Forum Sub Group - Acoustics, is set out in Volume 1.

2.2.2 Engagement with communities has been via the Community Forums, as set out in Volume 1. In respect of sound, noise and vibration the following discussions have taken place:

- general discussions in respect of local issues, including possible ways to avoid and mitigate the potential impacts of noise or vibration;
- September/October 2012; a specific presentation about sound, noise and vibration with discussion afterwards with one of the project team specialists;
- November/December 2012; specific request for the Community Forum to propose baseline sound monitoring locations;
- January/February 2013; feedback to the Community Forum on any proposed baseline monitoring locations; and
- verbal/written response to questions and sound, noise and vibration.

² Solihull Metropolitan Borough Council, (2006), The Solihull Unitary Development Plan

³ Solihull Metropolitan Borough Council, (2012), *Solihull Draft Local Plan*

⁴ North Warwickshire Borough Council, (2006), *North Warwickshire Local Plan*

2.3 Methodology

- 2.3.1 The methodology used for the assessment of airborne sound, ground-borne sound and vibration impacts and the determination of significant effects is defined in the Scope and Methodology Report (SMR) (Volume 5: Appendix CT-001-000/1), is clarified in a number of areas by the SMR addendum (Volume 5: Appendix CT-001-000/2). Further information is contained in Volume 5: Appendix SV-001-000.

2.4 Assumptions

- 2.4.1 Route-wide assumptions are outlined in Volume 1 and are further detailed in Volume 5: Appendix SV-001-000. Local assumptions that apply to the assessment of construction sound noise and vibration within this study area are set out in Volume 2, Birmingham Interchange and Chelmsley Wood (CFA Report 24), Section 11.

2.5 Limitations

- 2.5.1 The route-wide limitations and the approach adopted, to assure that they will not impact the robust assessment of sound, noise and vibration are presented in Volume 5: Appendix SV-001-000. No specific additional limitations are identified for this study area.

3 Environmental Baseline

Existing baseline

- 3.1.1 Baseline sound level data has been collected at locations representative of the airborne sound-sensitive receptors. The existing and future baseline airborne sound levels derived from these measurements are given in Volume 5: Appendix SV-002-024. Details of the baseline data collection and the methodology are given in Volume 5: Appendix SV-001-000 and specifically for this study area in Volume 5: Appendix SV-002-024.

Future baseline

- 3.1.2 The assessment of noise from construction activities assumes a baseline year of 2017 which represents the period immediately prior to the start of the construction period. As a reasonable worst case, it has been assumed that no change in baseline sound levels will occur between the existing baseline (2012/13) and the future baseline year of 2017. The assessment of noise from construction traffic assumes a baseline year of 2021, representative of the middle of the construction period when the construction traffic flows are expected to be at their peak. Further information can be found in the Traffic and transport assessment in Volume 5: Appendix TR-001-024.

4 Effects arising during construction

4.1 Introduction

4.1.1 The assessment is reported first for ground-borne vibration and then for airborne sound. Under each of these headings, the results of the quantitative identification of impacts and effects are presented. This is followed by the identification of significant effects and the evidence used to support these conclusions.

4.1.2 The structure of this assessment report is:

- avoidance and mitigation measures;
- quantitative identification of impact and effects:
 - ground-borne vibration;
 - residential; and
 - non-residential.
 - airborne sound;
 - residential; and
 - non-residential.
- assessment of impacts and effects:
 - residential receptors: direct effects – dwellings;
 - residential receptors: direct effects – communities;
 - residential receptors: indirect effects;
 - non-residential receptors: direct effects;
 - non-residential receptors: indirect effects; and
 - cumulative effects from the proposed scheme and other committed development.

4.2 Avoidance and mitigation measures

4.2.1 These are set out in, Volume 2, Birmingham Interchange and Chelmsley Wood (CFA Report 24), Section 11.

4.3 Quantitative identification of impacts and effects

Ground-borne vibration

4.3.1 Assessment locations defined for the quantitative assessment of impacts are shown on Map series SV-03 in the Volume 5, Map Book Sound, noise and vibration.

4.3.2

For each Assessment Location, the assessment results for residential and non-residential receptors are presented in Table 1. Explanation of the information in Table 1 is provided in Volume 5: Appendix SV-001-000, with the following additional notes:

	Where the significant effect column is highlighted, then a significant effect is identified at the referenced community, or individual receptor
*	Significant effect – the quantitative impact methodology has identified either: 1) no impact at this receptor but further information (see assessment) has identified that a significant effect is nonetheless likely; or 2) an impact at this receptor which, based upon further qualitative receptor information, (see assessment text) does not give rise to a significant effect.
~	Significant effect - The forecast adverse effects are not considered to be significant on a community basis (further information on methodology is provided in Volume 5: Appendix SV-001-000)
A	Type of effect – adverse effect.
S	Type of effect – significant adverse effect.
NA	Type of effect – generally no adverse effect.
B	Type of effect – for non-residential receptors further detail about the type of effect is set out in the text in Volume 5: Appendix SV-001-000.
R	Type of receptor – residential.
V1	Type of receptor – (V1) vibration sensitive research and manufacturing, hospital, and university equipment, (V2) hotels, hospital wards and education dormitories, (V3) offices, schools and places of worship, (V4) workshops.
T	Receptor design – typical.
S	Receptor design – special.

Appendix SV-003-024

Table 1: Assessment of construction induced ground-borne vibration at residential receptors

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Peak particle velocity (PPV) [mm/s] on foundation	Typical/highest monthly indoor vibration dose value (VDV) [m/s ^{-1.75}]		Construction activity resulting in highest forecast vibration levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
			Day 0700-2300	Night 2300-0700											
722000	Old Station Road, Hampton-In-Arden, Solihull	1.98	0.58/0.58	-	Earthworks	A	1	R	T	-	-	N	6	-	~
100515	Caretakers Flat, National Motorcycle Museum, A45 Coventry Road Bickenhill, Solihull	1.98	0.58/0.58	-	Earthworks	A	1	R	T	-	-	N	6	-	~
182204	Toby Carvery, A45 Coventry Road, Meriden, Coventry	1.32	0.45/0.45	-	Earthworks	A	1	R	T	-	-	N	6	-	~
181503	Common Farm (west façade), A452 Chester Road, Coleshill, Birmingham	1.21	0.42/0.42	-	Earthworks	A	1	R	T	-	-	N	5	-	~

Table 2: Assessment of construction induced ground-borne vibration at non-residential receptors

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Peak particle velocity (PPV) [mm/s] on foundation	Typical/highest monthly indoor vibration dose value (VDV) [m/s ^{-1.75}]		Construction activity resulting in highest forecast vibration levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
100515	National Motorcycle Museum, A45 Coventry Road, Bickenhill, Solihull	1.98	0.58/0.58	-	Filling	B	1	V3	T	-	-	N	6	-	*
181503	Commercial units, Common Farm A452 Chester Road, Coleshill, Birmingham	1.21	0.42/0.42	-	Earthworks	B	2	V3	T	-	-	Y	5	-	*
123995	Fujitsu industrial unit, Birmingham Business Park, Birmingham	0.17	0.07/0.07	-	Earthworks	B	1	V3	T	-	-	N	-	-	
101954	Commercial units Solihull Parkway, Birmingham Business Park, Birmingham	0.19	0.08/0.08	-	Earthworks	B	16	V3	T	-	-	N	-	-	
700560	Hilton Birmingham Metropole hotel (south façade), National Exhibition Centre, Birmingham	0.66	0.25/0.25	-	People Mover Vibratory Piling	B	1	V2	T	-	-	Y	4	-	CSV24-No2

Airborne sound: direct impacts and effects

- 4.3.3 Activities associated with the construction phases of the Proposed Scheme will generate airborne noise. The assessment of the likely impacts and significant effects as a result of the construction noise has considered the effects on:
- residential receptors, both as individual dwellings and communities; and
 - non-residential receptors, including quiet areas.
- 4.3.4 For each type of receptor, subject to the screening distances identified, and based upon supplied plant information from engineers, the typical and highest monthly $L_{Aeq,T}$ noise levels from construction activities have been calculated at the façade of all assessment locations, which are representative of a number of receptors in the study area.
- 4.3.5 The assessment results, impact criteria and significance criteria for the assessment of the scheme at residential and non-residential receptors are presented in Table 3 and Table 4 respectively.
- 4.3.6 Explanation of the information within Table 3 and Table 4 is provided in Volume 5: Appendix SV-001-000, with the following additional notes:

	Where the significant effect column is highlighted, then a significant effect is identified at the referenced community, or individual receptor.
*	Significant effect – the quantitative impact methodology has identified either: 1) no impact at this receptor but further information (see assessment) has identified that a significant effect is nonetheless likely; or 2) an impact at this receptor which, based upon further qualitative receptor information, (see assessment text) does not give rise to a significant effect.
~	Significant effect - The forecast adverse effects are not considered to be significant on a community basis (further information on methodology is provided in Volume 5: Appendix SV-001-000)
A	Type of effect – adverse effect.
S	Type of effect – significant adverse effect.
NA	Type of effect – generally no adverse effect.
B	Type of effect – for non-residential receptors further detail about the type of effect is set out in the text in Volume 5: Appendix SV-001-000.
R	Type of receptor – residential.
G	Type of receptor - (G1) theatres, large auditoria and concert halls, (G2) sound recording and broadcast studios, (G3) places of meeting for religious worship, courts, cinemas, lecture theatres, museums and small auditoria or halls, (G4) schools, colleges, hospitals, hotels and libraries, and (G5) offices and general commercial premises.
T	Receptor design – typical.
S	Receptor design – special.
H	Existing environment – high existing ambient noise levels, day >75 dB, evening >65

	dB or night >55 dB L_{pAeq} at the façade.
L	Existing environment – low existing ambient noise levels, day and evening ≤ 45 dB, or night ≤ 35 dB L_{pAeq} at the façade.
D,E,N	Impact duration (months) – duration of impact during the day (D), evening (E) or night (N).
NI	Mitigation effect - identified as likely to qualify for noise insulation under the draft CoCP.

Table 3: Assessment of construction noise at residential receptors

Assessment location		Impact criteria				Significance criteria										Significant effect
ID	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect		
		Day 0700-1900	Evening 1900-2300	Night 2300-0700												
100515	Caretakers Flat, National Motorcycle Museum, A45 Coventry Road Bickenhill, Solihull	55/63 [B]	53/58 [C]	53/58 [C]	Day: Road construction; Eve: Road construction; Night: Road construction.	NA	1	R	T	H	-	N	-	-		
101140	Drake Croft, Chelmsley Wood, Birmingham	53/56 [B]	-	-	Day: Demolition works	NA	36	R	T	H	-	N	-	-		
101595	Henbury Drive, Chelmsley Wood, Birmingham	45/49 [A]	-	-	Day: Viaduct superstructure	NA	47	R	T	-	-	N	-	-		
101701	Hawksworth Crescent, Chelmsley Wood, Birmingham	47/51 [A]	-	-	Day: Viaduct superstructure	NA	42	R	T	-	-	N	-	-		
102534	Dunster Road, Birmingham	48/55 [C]	<40/<40 [C]	<35/<35 [C]	Day: Utilities diversion; Eve: Road construction; Night: Road construction.	NA	29	R	T	H	-	N	-	-		
112149	Whitebeam Road, Birmingham	<40/<45 [A]	<40/<40 [B]	<35/<35 [C]	Day: Vegetation clearance; Eve: M42 viaduct beams; Night: M42 viaduct beams.	NA	241	R	T	-	-	N	-	-		
112266	Coleshill Heath Road, Birmingham	44/49 [C]	<40/<40 [C]	<35/<35 [C]	Day: Earthworks; Eve: M6 junction 4 roundabout bridge beams; Night: M6 junction 4 roundabout bridge beams.	NA	49	R	T	H	-	N	-	-		

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L_{pAeq} [dB] [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700-1900	Evening 1900-2300	Night 2300-0700											
112491	Coleshill Heath Road, Birmingham	46/54 [A]	<40/41 [A]	38/41 [C]	Day: Demolition; Eve: Road construction; Night: Road construction.	NA	1	R	T	-	-	N	-	-	
112652	Coleshill Heath Road, Birmingham	43/49 [C]	<40/<40 [C]	<35/<35 [C]	Day: Road head compound; Eve: Road construction; Night: Road construction.	NA	35	R	T	H	-	N	-	-	
114604	Woodlands Way, Birmingham	46/50 [A]	-	-	Day: Viaduct superstructure	NA	1	R	T	-	-	N	-	-	
114719	Foxland Close, Birmingham	51/55 [A]	<40/<40 [B]	<35/<35 [C]	Day: Viaduct superstructure; Eve: Road construction; Night: Road construction.	NA	65	R	T	-	-	N	-	-	
114723	Lycroft Avenue, Birmingham	51/55 [A]	<40/<40 [B]	<35/<35 [C]	Day: Viaduct superstructure; Eve: M6 junction 4 roundabout bridge beams; Night: M6 junction 4 roundabout bridge beams.	NA	24	R	T	-	-	N	-	-	
114727	Yorkminster Drive, Birmingham	55/61 [C]	-	-	Day: Viaduct superstructure	NA	8	R	T	H	-	N	-	-	
114737	Lycroft Avenue, Birmingham	51/56 [A]	<40/<40 [B]	<35/<35 [C]	Day: Viaduct superstructure; Eve: Road construction; Night: Road construction.	NA	45	R	T	-	-	N	-	-	
114952	Clover Avenue, Birmingham	48/52 [A]	<40/<40 [B]	<35/<35 [C]	Day: Viaduct superstructure; Eve: Road construction; Night: Road construction.	NA	40	R	T	-	-	N	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L _{pAeq} [dB] [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700-1900	Evening 1900-2300	Night 2300-0700											
115205	Friars Walk, Birmingham	47/51 [A]	<40/<40 [B]	<35/<35 [C]	Day: Viaduct superstructure; Eve: M6 junction 4 roundabout bridge beams; Night: M6 junction 4 roundabout bridge beams.	NA	28	R	T	-	-	N	-	-	
115343	Friars Walk, Birmingham	49/54 [A]	<40/<40 [B]	<35/35 [C]	Day: Earthworks; Eve: M6 junction 4 roundabout bridge beams; Night: M6 junction 4 roundabout bridge beams.	NA	29	R	T	-	-	N	-	-	
115349	Lyecroft Avenue, Birmingham	50/54 [A]	<40/<40 [C]	<35/37 [C]	Day: Viaduct superstructure; Eve: M6 junction 4 roundabout bridge beams; Night: M6 junction 4 roundabout bridge beams.	NA	52	R	T	-	-	N	-	-	
115364	Clover Avenue, Birmingham	50/55 [A]	<40/<40 [C]	<35/37 [C]	Day: Earthworks; Eve: M6 junction 4 roundabout bridge beams; Night: M6 junction 4 roundabout bridge beams.	NA	15	R	T	-	-	N	-	-	
115413	Bluebell Drive, Birmingham	49/56 [A]	<40/<40 [C]	<35/<35 [C]	Day: Utilities diversion; Eve: Road construction; Night: Road construction.	NA	25	R	T	-	-	N	-	-	
115486	Dunster Road, Birmingham	46/51 [C]	-	-	Day: Utilities diversion	NA	116	R	T	H	-	N	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L _{pAeq} [dB] [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700-1900	Evening 1900-2300	Night 2300-0700											
115567	Lumley Grove, Birmingham	44/48 [A]	-	-	Day: Earthworks	NA	84	R	T	-	-	N	-	-	
115571	Craig Croft, Birmingham	44/48 [A]	-	-	Day: Viaduct superstructure	NA	34	R	T	-	-	N	-	-	
115743	Mulliners Close, Birmingham	45/48 [C]	-	-	Day: Viaduct superstructure	NA	37	R	T	H	-	N	-	-	
116024	Marlene Croft, Birmingham	42/46 [C]	-	-	Day: Bridge superstructure	NA	204	R	T	-	-	N	-	-	
116612	Chelmsley Road, Birmingham	41/45 [B]	-	-	Day: Viaduct superstructure	NA	26	R	T	-	-	N	-	-	
116976	Wardour Drive, Birmingham	43/46 [A]	-	-	Day: Viaduct superstructure	NA	60	R	T	-	-	N	-	-	
117340	Wardour Drive, Birmingham	43/47 [A]	-	-	Day: Earthworks	NA	69	R	T	-	-	N	-	-	
117503	Carisbrooke Avenue, Birmingham	43/47 [A]	-	-	Day: Bridge superstructure	NA	56	R	T	-	-	N	-	-	
117660	Chelmsley Road, Birmingham	43/47 [A]	-	-	Day: Bridge superstructure	NA	49	R	T	-	-	N	-	-	
117759	Dunster Road, Birmingham	45/48 [B]	-	-	Day: Utilities diversion	NA	81	R	T	-	-	N	-	-	
117787	Fillingham Close,	46/53	<40/<40	<35/<35	Day: Utilities diversion; Eve: M6 junction 4 roundabout bridge	NA	32	R	T	-	-	N	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L _{pAeq} [dB] [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700-1900	Evening 1900-2300	Night 2300-0700											
	Birmingham	[A]	[B]	[C]	beams; Night: M6 junction 4 roundabout bridge beams.										
117835	Dunster Road, Birmingham	51/62 [C]	<40/<40 [C]	<35/<35 [C]	Day: Utilities diversion; Eve: Road construction; Night: Road construction.	NA	13	R	T	H	-	N	-	-	
117857	Fillingham Close, Birmingham	52/65 [C]	<40/<40 [C]	<35/<35 [C]	Day: Utilities diversion; Eve: Road construction; Night: Road construction.	NA	16	R	T	H	-	N	-	-	
118017	Dunster Road, Birmingham	42/47 [B]	-	-	Day: Viaduct superstructure	NA	49	R	T	-	-	N	-	-	
118170	Fillingham Close, Birmingham	47/56 [A]	<40/<40 [B]	<35/<35 [C]	Day: Utilities diversion; Eve: Road construction; Night: Road construction.	NA	22	R	T	-	-	N	-	-	
118204	Coleshill Heath Road, Birmingham	53/66 [C]	<40/<40 [C]	<35/37 [C]	Day: Utilities diversion; Eve: M6 junction 4 roundabout bridge beams; Night: M6 junction 4 roundabout bridge beams.	NA	13	R	T	H	-	N	-	-	
118274	Marlene Croft, Birmingham	42/46 [C]	-	-	Day: Viaduct superstructure	NA	64	R	T	-	-	N	-	-	
118460	Fillingham Close, Birmingham	44/51 [A]	<40/<40 [B]	<35/<35 [C]	Day: Utilities diversion; Eve: Road construction; Night: Road construction.	NA	67	R	T	-	-	N	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L _{pAeq} [dB] [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700-1900	Evening 1900-2300	Night 2300-0700											
118502	Coleshill Heath Road, Birmingham	47/55 [C]	<40/<40 [C]	<35/<35 [C]	Day: Utilities diversion; Eve: M6 junction 4 roundabout bridge beams; Night: M6 junction 4 roundabout bridge beams.	NA	25	R	T	H	-	N	-	-	
118734	Chelmsley Road, Birmingham	44/49 [A]	<40/<40 [B]	<35/<35 [C]	Day: Utilities diversion; Eve: Road construction; Night: Road construction.	NA	79	R	T	-	-	N	-	-	
118824	Coleshill Heath Road, Birmingham	44/49 [C]	<40/<40 [C]	<35/<35 [C]	Day: Road head compound; Eve: M6 junction 4 roundabout bridge beams; Night: M6 junction 4 roundabout bridge beams.	NA	16	R	T	H	-	N	-	-	
119054	Coleshill Heath Road, Birmingham	45/50 [C]	<40/<40 [C]	<35/<35 [C]	Day: Earthworks; Eve: Road construction; Night: Road construction.	NA	58	R	T	H	-	N	-	-	
119757	Caretakers House, Marlene Croft, Birmingham	41/<45 [A]	-	-	Day: Viaduct superstructure	NA	1	R	T	-	-	N	-	-	
119785	Marlene Croft, Birmingham	42/46 [C]	-	-	Day: Bridge superstructure	NA	34	R	T	-	-	N	-	-	
120095	Nevada Way, Birmingham	41/<45 [A]	-	-	Day: Viaduct superstructure	NA	92	R	T	-	-	N	-	-	
121398	Partridge Close,	46/50	-	-	Day: Demolition works	NA	28	R	T	-	-	N	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L _{pAeq} [dB] [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700- 1900	Evening 1900- 2300	Night 2300- 0700											
	Birmingham	[A]													
121445	Ryeclose Croft, Birmingham	50/54 [A]	-	-	Day: Demolition works	NA	30	R	T	-	-	N	-	-	
121494	Ryeclose Croft, Birmingham	52/56 [A]	-	-	Day: Demolition works	NA	30	R	T	-	-	N	-	-	
121657	Wheaten Close, Birmingham	53/56 [B]	-	-	Day: Earthworks	NA	24	R	T	H	-	N	-	-	
121670	Brook Farm Walk, Birmingham	49/53 [A]	-	-	Day: Demolition works	NA	145	R	T	-	-	N	-	-	
121806	Waterson Croft, Birmingham	53/56 [A]	-	-	Day: Demolition works	NA	65	R	T	-	-	N	-	-	
121982	Woodlands Way, Birmingham	47/51 [A]	-	-	Day: Earthworks	NA	73	R	T	-	-	N	-	-	
122203	Travellers Way, Birmingham	51/55 [A]	-	-	Day: Earthworks	NA	55	R	T	-	-	N	-	-	
122274	Cornfield Croft, Birmingham	53/57 [A]	-	-	Day: Earthworks	NA	32	R	T	-	-	N	-	-	
122335	Cornfield Croft, Birmingham	50/54 [C]	-	-	Day: Viaduct superstructure	NA	22	R	T	H	-	N	-	-	
122378	Cornfield Croft, Birmingham	54/59 [B]	-	-	Day: Earthworks	NA	118	R	T	H	-	N	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L _{pAeq} [dB] [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700-1900	Evening 1900-2300	Night 2300-0700											
122410	Yorkminster Drive, Birmingham	55/60 [C]	<40/<40 [C]	<35/<35 [C]	Day: Viaduct superstructure; Eve: M6 junction 4 roundabout bridge beams; Night: M6 junction 4 roundabout bridge beams.	NA	14	R	T	H	-	N	-	-	
122568	Yorkminster Drive, Birmingham	54/59 [C]	-	-	Day: Viaduct superstructure	NA	25	R	T	H	-	N	-	-	
122968	Roach Close, Birmingham	46/49 [A]	-	-	Day: Demolition works	NA	153	R	T	-	-	N	-	-	
123085	Richmond Way, Birmingham	46/50 [A]	-	-	Day: Retaining wall construction	NA	64	R	T	-	-	N	-	-	
123146	Partridge Close, Birmingham	46/49 [A]	-	-	Day: Viaduct superstructure	NA	56	R	T	-	-	N	-	-	
123214	Pike Drive, Birmingham	46/49 [C]	-	-	Day: Viaduct superstructure	NA	33	R	T	-	-	N	-	-	
124272	Yorkminster Drive, Birmingham	55/61 [C]	<40/<40 [C]	<35/36 [C]	Day: Viaduct superstructure; Eve: M6 junction 4 roundabout bridge beams; Night: M6 junction 4 roundabout bridge beams.	NA	8	R	T	H	-	N	-	-	
124293	Yorkminster Drive, Birmingham	54/59 [C]	<40/<40 [C]	<35/36 [C]	Day: Viaduct superstructure; Eve: M6 junction 4 roundabout bridge beams; Night: M6 junction 4 roundabout bridge	NA	8	R	T	H	-	N	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L _{pAeq} [dB] [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700- 1900	Evening 1900- 2300	Night 2300- 0700											
					beams.										
124314	Chiswick Walk, Birmingham	52/56 [A]	<40/<40 [C]	<35/<35 [C]	Day: Earthworks; Eve: M6 junction 4 roundabout bridge beams; Night: M6 junction 4 roundabout bridge beams.	NA	28	R	T	-	-	N	-	-	
124331	Chiswick Walk, Birmingham	53/57 [A]	<40/<40 [C]	<35/<35 [C]	Day: Earthworks Eve: M6 junction 4 roundabout bridge beams; Night: M6 junction 4 roundabout bridge beams.	NA	25	R	T	-	-	N	-	-	
124367	Chiswick Walk, Birmingham	57/63 [A]	<40/<40 [C]	<35/38 [C]	Day: Viaduct superstructure; Eve: M6 junction 4 roundabout bridge beams; Night: M6 junction 4 roundabout bridge beams.	NA	16	R	T	H	-	N	-	-	
124404	Yorkminster Drive, Birmingham	57/64 [C]	<40/<40 [C]	<35/38 [C]	Day: Viaduct superstructure; Eve: M6 junction 4 roundabout bridge beams; Night: M6 junction 4 roundabout bridge beams.	NA	16	R	T	H	-	N	-	-	
124466	Chiswick Walk, Birmingham	53/58 [A]	<40/<40 [C]	<35/37 [C]	Day: Viaduct superstructure; Eve: M6 junction 4 roundabout bridge beams; Night: M6 junction 4 roundabout bridge	NA	5	R	T	-	-	N	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L _{pAeq} [dB] [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700-1900	Evening 1900-2300	Night 2300-0700											
					beams.										
124483	Bluebell Drive, Birmingham	52/57 [A]	<40/<40 [C]	35/39 [C]	Day: Earthworks; Eve: M6 junction 4 roundabout bridge beams; Night: M6 junction 4 roundabout bridge beams.	NA	15	R	T	-	-	N	-	-	
124506	Bluebell Drive, Birmingham	51/56 [A]	<40/<40 [C]	<35/37 [C]	Day: Earthworks; Eve: M6 junction 4 roundabout bridge beams; Night: M6 junction 4 roundabout bridge beams.	NA	14	R	T	-	-	N	-	-	
181301	Middle Bickenhill Lane, Hampton-In-Arden, Solihull	60/69 [A]	50/55 [C]	50/55 [C]	Day: Fencing; Eve: Road construction; Night: Road construction.	A	2	R	T	H	-	N	D 2	-	~
181323	Middle Bickenhill Lane, Hampton-In-Arden, Solihull	61/73 [C]	52/58 [C]	52/58 [C]	Day: Utility diversions; Eve: Road construction; Night: Road construction.	NA	3	R	T	H	-	N	-	-	
181420	Middle Bickenhill Lane, Hampton-In-Arden, Solihull	65/73 [B]	46/51 [C]	46/51 [C]	Day: Utility diversions; Eve: Road construction; Night: Road construction.	A	2	R	T	H	-	N	D 6	-	~
181503	Common Farm (west façade), A452 Chester Road, Coleshill, Birmingham	62/73 [B]	50/57 [C]	50/57 [C]	Day: Fencing; Eve: A452 link road overbridge piling; Night: A452 link road overbridge piling.	A	1	R	T	H	-	Y	D 2	-	~

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L _{pAeq} [dB] [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700- 1900	Evening 1900- 2300	Night 2300- 0700											
700558	Common Farm (east façade), A452 Chester Road, Coleshill, Birmingham	60/72 [B]	44/51 [C]	44/51 [C]	Day: Utility diversions; Eve: Road construction; Night: Road construction.	A	1	R	T	H	-	N	D 1	-	~
181557	Park Farm (west façade), A452 Chester Road, Hampton-In-Arden, Solihull	59/69 [A]	41/48 [A]	41/48 [B]	Day: Birmingham Interchange station and car parks works below ground; Eve: A452 bridge over A446 deck; Night: A452 bridge over A446 deck.	A	1	R	T	-	-	N	D 2	-	~
700559	Park Farm (south façade), A452 Chester Road, Hampton-In-Arden, Solihull	61/67 [A]	53/61 [A]	53/61 [B]	Day: Birmingham Interchange access overbridge piling; Eve: Birmingham Interchange access overbridge deck; Night: Birmingham Interchange access overbridge deck.	S	1	R	T	-	-	N	D 7; E 2; N 2	NI	CSV24-Do1
182204	Toby Carvery, A45 Coventry Road, Meriden, Coventry	57/65 [C]	50/53 [C]	50/53 [C]	Day: Fencing; Eve: Road construction; Night: Road construction.	NA	1	R	T	H	-	N	-	-	
182291	Packington Lane, Meriden, Coventry	53/59 [A]	40/47 [B]	40/47 [C]	Day: Vegetation clearance; Eve: Birmingham Interchange access overbridge deck; Night: Birmingham Interchange access overbridge deck.	NA	5	R	T	H	-	N	-	-	
700557	Mill Farm, A45 Coventry Road, Solihull	51/59 [B]	45/51 [C]	45/51 [C]	Day: Topsoil strip; Eve: Road construction; Night: Road construction.	NA	2	R	T	H	-	N	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L _{pAeq} [dB] [Assessment category A/B/C]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700-1900	Evening 1900-2300	Night 2300-0700											
700564	Pike Drive, Chelmsley Wood, Birmingham	44/48 [C]	-	-	Day: Retaining wall construction	NA	1	R	T	-	-	N	-	-	
722000	Old Station Road, Hampton-In-Arden, Solihull	61/77 [B]	45/48 [C]	45/48 [C]	Day: Vegetation clearance; Eve: Road construction; Night: Road construction.	S	1	R	T	H	-	Y	D 2	NI	CSV24-D02

Table 4: Assessment of construction noise at non-residential receptors

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L _{pAeq} [dB]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700- 2300	Evening 1900- 2300	Night 2300- 0700											
98009	Exhibition Halls, National Exhibition Centre, Birmingham	53/57	41/48	-	Day: Birmingham Interchange station and car parks works below ground; Eve: A452 link road overbridge piling.	B	1	G3	T	-	-	N	-	-	
99133	Hilton Birmingham Metropole hotel, (east façade), National Exhibition Centre, Birmingham	59/66	45/52	44/52	Day: Prepare ground; Eve: People Mover M42 viaduct beams; Night: People Mover M42 viaduct beams.	B	1	G4	T	-	-	N	D 46	-	CSV24-No2
99690	Exhibition Halls, National Exhibition Centre, Birmingham	56/61	<40/47	-	Day: Birmingham Interchange station and car parks works below ground; Eve: A452 link road overbridge piling.	B	1	G3	T	-	-	N	D 3	-	*
99690	West Midlands Fire Service, National Exhibition Centre, Birmingham	56/61	<40/47	-	Day: Birmingham Interchange station and car parks works below ground; Eve: A452 link road overbridge piling.	B	1	G4	T	-	-	N	D 3	-	*
100515	National Motorcycle Museum, A45 Coventry Road, Bickenhill, Solihull	55/63	53/58	-	Day: Road construction; Eve: Road construction.	B	1	G3	T	H	-	N	-	-	
100628	Premier Inn hotel, Bickenhill Parkway, Birmingham	47/53	43/47	42/47	Day: Vegetation clearance; Eve: A452 link road overbridge piling; Night: A452 link road overbridge piling.	B	1	G4	T	-	-	N	-	-	
100835	Birmingham Police, Birmingham Business	52/58	45/47	-	Day: Demolition; Eve: A452 link road overbridge piling.	B	7	G4	T	H	-	N	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L _{pAeq} [dB]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700- 2300	Evening 1900- 2300	Night 2300- 0700											
	Park, Birmingham														
100835	Commercial units Solihull Parkway, Birmingham Business Park, Birmingham	52/58	-	-	Day: Demolition	B	24	G5	T	H	-	N	-	-	
101235	Commercial units Solihull Parkway, Birmingham Business Park, Birmingham	53/61	-	-	Day: Demolition	B	1	G5	T	H	-	N	-	-	
101954	Commercial units Solihull Parkway, Birmingham Business Park, Birmingham	64/71	-	-	Day: Road head compound	B	16	G5	T	-	-	N	-	-	
112149	Retail unit, Whitebeam Road, Birmingham	<40/<40	-	-	Day: Vegetation clearance	B	1	G5	T	-	-	N	-	-	
114604	Windy Arbor Junior and Infant School, Woodlands Way, Birmingham	46/50	-	-	Day: Viaduct superstructure	B	1	G4	T	-	-	N	-	-	
115571	Seventh Day Adventist Church And Chelmsley Wood Baptist Church Centre, Craig Croft, Birmingham	44/48	-	-	Day: Bridge superstructure	B	2	G3	T	-	-	N	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L _{pAeq} [dB]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700- 2300	Evening 1900- 2300	Night 2300- 0700											
115571	Craig Croft Child Health Clinic, Craig Croft, Birmingham	44/48	-	-	Day: Bridge superstructure	B	3	G4	T	-	-	N	-	-	
115743	Commercial units, Dunster Road, Chelmsley Wood	45/48	-	-	Day: Viaduct superstructure	B	1	G5	T	H	-	N	-	-	
115819	Croft Industrial Estate, Dunster Road, Birmingham	45/49	-	-	Day: Viaduct superstructure	B	5	G5	T	H	-	N	-	-	
118460	Retail store, Dunster Road, Birmingham	44/51	-	-	Day: Utilities diversion	B	1	G5	T	-	-	N	-	-	
118734	Public House, Helmswood Drive, Birmingham	44/49	-	-	Day: Utilities diversion	B	1	G5	T	-	-	N	-	-	
119757	Coleshill Heath Primary and Junior School, Marlene Croft, Birmingham	41/44	-	-	Day: Viaduct superstructure	B	1	G4	T	-	-	N	-	-	
121670	Retail store, Brook Farm Walk, Birmingham	49/53	-	-	Day: Demolition works	B	1	G5	T	-	-	N	-	-	
122203	Beechwood Nursery, Woodlands Way, Birmingham	51/55	-	-	Day: Earthworks	B	1	G4	T	-	-	N	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L _{pAeq} [dB]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700-2300	Evening 1900-2300	Night 2300-0700											
122709	Commercial units, Griffin Business Park, Chelmsley Wood	45/49	-	-	Day: Demolition works	B	5	G5	T	H	-	N	-	-	
123214	Community Hall, Pike Drive, Birmingham	46/49	-	-	Day: Viaduct superstructure	B	1	G3	T	-	-	N	-	-	
123622	Commercial units, The Crescent, Birmingham Business Park, Birmingham	59/65	-	-	Day: Earthworks	B	16	G5	T	-	-	N	-	-	
123706	Commercial units, Solihull Parkway, Birmingham Business Park, Birmingham	51/59	-	-	Day: Demolition	B	4	G5	T	H	-	N	-	-	
123773	Commercial units, Solihull Parkway, Birmingham Business Park, Birmingham	48/55	-	-	Day: Demolition	B	8	G5	T	-	-	N	-	-	
123856	Commercial units, The Crescent, Birmingham Business Park, Birmingham	55/61	-	-	Day: Earthworks	B	7	G5	T	-	-	N	-	-	
123995	Fujitsu industrial unit, Birmingham Business Park, Birmingham	62/69	-	-	Day: Demolition	B	1	G5	T	H	-	N	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L _{pAeq} [dB]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700-2300	Evening 1900-2300	Night 2300-0700											
124567	Birmingham Business Park, Birmingham	52/57	-	-	Day: Earthworks	B	9	G ₅	T	-	-	N	-	-	
129971	Express by Holiday Inn Hotel, Bickenhill Parkway, Birmingham	57/66	50/56	50/56	Day: Vegetation clearance; Eve: A452 Link Road overbridge piling; Night: A452 Link Road overbridge piling.	B	1	G ₄	T	H	-	N	D 1; N 1	-	*
129971	Bickenhill Parkway, Birmingham	57/66	-	-	Day: Vegetation clearance	B	1	G ₅	T	H	-	N	-	-	
129994	Birmingham Business Park, Birmingham	62/67	-	-	Day: Earthworks	B	13	G ₅	T	-	-	N	-	-	
176071	Garden Centre, A452 Chester Road	58/67	-	-	Day: Roundabout construction	B	1	G ₅	T	H	-	N	-	-	
181503	Commercial units, Common Farm, A452 Chester Road, Coleshill, Birmingham	62/73	-	-	Day: Fencing	B	2	G ₅	T	H	-	N	-	-	
181557	Commercial units, Park Farm, A452 Chester Road, Hampton-In-Arden, Solihull	59/69	-	-	Day: Birmingham Interchange station and car parks works below ground	B	7	G ₅	T	-	-	N	-	-	
182291	St Bartholomew's Church, Packington Lane, Solihull	53/59	40/47	-	Day: Vegetation clearance; Eve: Birmingham Interchange access overbridge deck.	B	1	G ₃	T	H	-	N	-	-	
183646	Quartz Point Business Park, A446 Stonebridge	56/67	-	-	Day: Vegetation clearance	B	12	G ₅	T	H	-	N	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L _{pAeq} [dB]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700- 2300	Evening 1900- 2300	Night 2300- 0700											
	Road, Coleshill, Birmingham														
700557	Mill Farm Barns, A45 Coventry Road, Solihull	51/59	-	-	Day: Topsoil strip	B	5	G5	T	H	-	N	-	-	
700560	Hilton Birmingham Metropole hotel (south façade), National Exhibition Centre, Birmingham	63/71	45/51	44/51	Day: Prepare ground; Eve: People mover (crossing over) M42 viaduct beams; Night: People mover (crossing over) M42 viaduct beams.	B	1	G4	T	-	-	Y	D 42	-	CSV24-No2
700561	Crowne Plaza Birmingham NEC, Pendigo Way, Birmingham	63/70	44/50	43/50	Day: Construct haul route; Eve: People mover (crossing over) M42 viaduct beams; Night: People mover (crossing over) M42 viaduct beams.	B	1	G4	T	-	-	N	D 36	-	CSV24-No2
700562	Exhibition Halls, National Exhibition Centre, Birmingham	66/76	<40/43	-	Day: Prepare ground; Eve: People mover (crossing over) M42 viaduct beams.	B	8	G3	T	-	-	N	D 35	-	CSV24-No1
700563	Under Construction - Bishop Wilson school, Craig Croft, Birmingham	44/48	-	-	Day: Viaduct superstructure	B	1	G4	T	-	-	N	-	-	
700564	Bishop Wilson Junior and Infant school, Pike Drive,, Birmingham	44/48	-	-	Day: Retaining wall construction	B	1	G4	T	-	-	N	-	-	
701081	Craig Croft retail centre	45/48	-	-	Day: Viaduct superstructure	B	4	G5	T	-	-	N	-	-	

Assessment location		Impact criteria				Significance criteria									Significant effect
ID	Area represented	Typical/highest monthly outdoor L _{pAeq} [dB]			Construction activity resulting in highest forecast noise levels	Type of effect	Number of impacts represented	Type of receptor	Receptor design	Existing environment	Unique feature	Combined impact	Impact duration [months]	Mitigation effect	
		Day 0700- 2300	Evening 1900- 2300	Night 2300- 0700											
	and club, Craig Croft, Birmingham														
722001	Portland House, Bickenhill Lane, Hampton-In-Arden, Solihull	60/69	-	-	Day: Prepare ground	B	1	G5	T	-	-	N	-	-	
722002	Diamond House, Birmingham Airport	71/77	-	-	Day: Prepare ground	B	1	G5	T	-	-	N	D 1	-	CSV24-No4
722003	Novotel, Ibis and Etap hotels, Birmingham Airport	59/64	-	50/55	Day: Prepare ground; Night: People mover Birmingham Airport viaduct beams.	B	3	G4	T	-	-	N	D 15; N 1	-	CSV24-No3*

Airborne sound: indirect effects

- 4.3.7 Construction road traffic associated with the construction phases of the Proposed Scheme will generate airborne noise. Based upon traffic information for the Proposed Scheme, the change in traffic noise level at a reference distance of 10m from the edge of the nearside carriageway resulting from the presence of construction traffic for a given road has been predicted. Data has been provided for four representative months during the works. The results indicate that no roads in the Birmingham Interchange and Chelmsley Wood area will experience potentially significant changes in traffic noise levels due to construction traffic.

4.4 Assessment of significant effects

Residential receptors: direct effects – individual dwellings

- 4.4.1 Taking account of the avoidance and mitigation measures set out in the previous paragraphs, two residential buildings: Park Farm; and the dwelling at the northern end of Old Station Road, Hampton-in-Arden closest to the M42 junction 6 works, are forecast to experience noise levels higher than the noise insulation trigger levels as defined in the draft CoCP. For daytime construction the trigger level is 75dB⁵ measured outdoors, or the existing ambient if this is already above this level. The equivalent night-time trigger level is 55dB⁶, or the existing ambient if this is already above this level.
- 4.4.2 At Park Farm (CSV24-Do1), the draft CoCP trigger level is predicted to be exceeded at night at the south facade (represented by assessment location 700559) for two months in 2018 during the installation of the bridge deck at the nearby Birmingham Interchange access overbridge over the A452 Chester Road. Since the completion of the quantitative noise assessment the demolition of the most southerly barn at the farm is no longer required by the scheme. This will be beneficial at both the residential property and the adjacent commercial units but will not change the outcome of the assessment.
- 4.4.3 At the property at the northern end of Old Station Road (CSV24-Do2), the draft CoCP trigger level is predicted to be exceeded during the day for one month in 2017 due to vegetation clearance works adjacent to the property. Since the completion of the quantitative noise assessment the likely need for additional utility works in this area, consisting of works to the existing transmission towers and overhead power lines, plus a water main diversion, have been identified. These works may increase the predicted daytime noise levels at this assessment location for a limited duration. As the property is already identified as qualifying for noise insulation these additional utility works will not change the outcome of the assessment.
- 4.4.4 The mitigation measures, including noise insulation, will reduce noise inside all dwellings, including those at Park Farm and Old Station Road, such that it does not reach a level where it would significantly affect residents.

⁵ L_{pAeq,0800-1800} measured at the façade, outdoors, or the existing ambient if this is already above this level.

⁶ L_{pAeq,2200-0700} measured at the façade, outdoors, or the existing ambient if this is already above this level.

Residential receptors: direct effects –communities

- 4.4.5 The avoidance and mitigation measures in this area will avoid airborne construction noise adverse effects on the majority of receptors and communities. Residual temporary noise or vibration effects are identified later in this section.
- 4.4.6 With regard to noise outside dwellings, the assessment of temporary effects takes account of construction noise relative to existing sound levels.
- 4.4.7 In locations with lower existing sound levels⁷, construction noise adverse effects¹ are likely to be caused by changes to noise levels outside dwellings. These may be considered by the local community as an effect on the acoustic character of the area and hence be perceived as a change in the quality of life. These effects are considered to be significant when assessed on a community basis taking account of the local context⁷.
- 4.4.8 Vibro-compaction is likely to result in appreciable ground-borne vibration at a small number of individual dwellings, situated closest to this activity, resulting in moderate adverse effects at these properties⁸. These receptors will also be exposed to appreciable noise from the construction of the Proposed Scheme. The significance of the identified vibration effects has been assessed in combination with the airborne noise also identified at these receptors.
- 4.4.9 In this area, the mitigation measures reduce the adverse effects of construction airborne noise and ground-borne vibration on the local residential communities such that the adverse effects identified are considered to be not significant.

Residential receptors: indirect effects

- 4.4.10 Significant noise effects on residential receptors arising from construction traffic are unlikely to occur in this area.

Non-residential receptors: direct effects

- 4.4.11 On a worst case basis, significant construction noise or vibration effects have been identified on the following non-residential receptors the typical and worst case noise levels are reported to the nearest 5dB:
- the closest National Exhibition Centre (NEC) buildings to the people mover, Exhibition Hall 1 and the Pavilion area (CSV24-No1). Significant noise effects have been identified during the daytime from construction noise levels rising at times to around 75dB⁹. The source of the exceedance is various works to construct the people mover, which passes in close proximity to Exhibition Hall 1 and the Pavilion area of the NEC. The duration of impact could be up to 35 months commencing in 2019. The significance and duration of the effect will depend on the exact usage of the affected areas and the sound insulation of the buildings;
 - Crowne Plaza Birmingham NEC and Hilton Birmingham Metropole hotels

⁷ Further information is provided in Volume 5: Appendix SV-001-000

⁸ Resulting in possible adverse comment. There is no risk of damage, even cosmetic, to buildings

⁹ Equivalent continuous sound level at the facade, L_{pAeq}, 0700-1900.

(CSV24-No2). Significant noise effects have been identified during the daytime from construction noise levels rising at times to around 70dB⁹. The durations of the effect on each hotel are approximately 36 and 46 months respectively commencing in 2019 and 2017 respectively. Various works to construct the people mover are the main source of the effect. Vibratory piling works to construct the people mover also result in a minor adverse effect at the Hilton Birmingham Metropole hotel, when at their closest;

- Novotel, Ibis and Etap hotels at Birmingham Airport (CSV24-No3). Significant noise effects have been identified during the daytime from construction noise levels rising at times to around 65dB⁹. The duration of impact is approximately 15 months commencing in 2020. The source of the effect is various works to construct the people mover. The night-time criterion at the hotels is predicted to be exceeded by 1dB for one month, due to works on the people mover viaduct. Due to the limited magnitude and duration of the impact a significant night-time effect is not considered likely; and
- Diamond House office building at Birmingham Airport (CSV24-No4). Significant noise effects have been identified during the daytime from construction noise levels rising at times to around 75dB⁹. The duration of impact is approximately one month in 2020. The source of the effect is various works to construct the people mover.

- 4.4.12 At the NEC fire station and NEC Exhibition Hall 12, represented by assessment location 99690, construction noise levels are predicted to exceed the daytime screening criterion by 2dB for three months. However, based on the limited magnitude and duration of the impact, and the fairly low construction noise levels, a significant effect on this area of the NEC is not considered likely.
- 4.4.13 At the Express by Holiday Inn hotel on Bickenhill Parkway, represented by assessment location 129971, construction noise levels are predicted to exceed the daytime screening criterion by 2dB for one month, due to vegetation clearance works at the nearby road works, and the night-time criterion by 1dB for one month, due to viaduct works over the M42. Due to the limited magnitude and duration of the impacts and the nature of the receptor, a significant effect is not considered likely.
- 4.4.14 At the National Motorcycle Museum on the A45 Coventry Road, represented by assessment location 100515, vibro-compaction of the earthworks associated with the adjacent road works to the A45 Coventry Road exceed the vibration screening criterion at the closest edge of the museum building. Taking into account the nature of the earthworks at this location, which are limited to a thin strip along the edge of the A45 Coventry Road, and the sensitivity of the National Motorcycle Museum to vibration, a significant effect is not considered likely.
- 4.4.15 At the commercial units at Common Farm, A452 Chester Road, represented by assessment location 181503, vibro-compaction of the earthworks associated with the adjacent road works are the source of a slight exceedance of the vibration screening criteria. Based on the magnitude of the impact and the nature of the commercial units, a significant effect is not considered likely.

Non-residential receptors: indirect effects

- 4.4.16 Significant noise effects on non-residential receptors arising from construction traffic are unlikely to occur in this area.

Cumulative effects from the Proposed Scheme and other committed development.

- 4.4.17 This assessment has considered the potential cumulative construction noise effects of the Proposed Scheme and other committed developments¹⁰. In this area, it is not anticipated that there will be any developments built at the same time as the Proposed Scheme and accordingly, construction noise or vibration from the Proposed Scheme is unlikely to result in any significant cumulative noise effects.

¹⁰ Refer to Volume 5: Appendix CT-004-000

5 References

Department for Communities and Local Governments; *National Planning Practice Guidance – Noise*; <http://planningguidance.planningportal.gov.uk>; Accessed: October 2013

North Warwickshire Borough Council, (2006), North Warwickshire Local Plan

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